

CaliputerTM

3905 VOLTAIRE STREET
SAN DIEGO, CALIFORNIA, 92107

INSTRUCTIONS

The **CALIPUTER** combines the functions of a sliderule, vernier caliper and vernier depth gage in one accurate, durable instrument. Many computations may be accomplished with a single setting.

TO READ THE INCH VERNIER SCALE note the number of inches and subdivisions at the zero mark of the vernier. Each subdivision on the 4 inch scale is .025 inch. Add the number of thousandths indicated between the vernier zero and that line on the vernier which coincides exactly with a line on the true scale.

TO READ THE METRIC VERNIER SCALE note the number of millimeters at the zero mark of the vernier. Each subdivision of the main scale is .50 mm. Find the line on the vernier which coincides with a line on the main scale. Each line on the vernier is .02 mm. Multiply the number of lines from zero to the line of coincidence on the vernier by .02 and add this to the number of millimeters at the vernier zero mark.

OUTSIDE DIAMETERS AND DISTANCES up to 4 inches or 10.1 cm. may be measured by placing the object between the jaws of the Caliputer. The measurement may be read in fractions to $1/32$ inch on the top edge scale, or to .001 in. or .02 mm. accuracy on the vernier scale.

INSIDE DIAMETERS AND DISTANCES up to 4 inches or 10.1 cm. may be measured by using the nibs inside the object. Measurement in fractions may be read at the right hand face of the moving jaw on the top edge scale, or to .001 inch by adding .188, the width of combined nibs, to the "outside" vernier reading, or by adding 4.78 mm.

DEPTH measurements are made between the right hand extension of the slide and the end of the Caliputer body. Read to .001 inch or .02 mm. on the "depth" vernier scale.

TO ADJUST THE VERNIER SCALES loosen both screws in the scale to be adjusted. Close the caliper fully, or the depth gage exactly flush. Move the vernier scale so that its "zero" line exactly coincides with the left hand index of the 4 inch scale. Tighten the screws and recheck the zero.

TO MULTIPLY OR DIVIDE use the "C" and "D" scales. To multiply set the index (numeral one) of "C" scale opposite the number to be multiplied on "D" scale. Read answer on "D" scale in line with other multiplier on "C" scale. To divide set the divisor on "C" scale directly over the number to be divided on "D" scale. Read answer on "D" scale opposite "C" scale index. Division, where the above arrangement is not possible due to the limited travel of the "C" scale, may be accomplished by using multiplication of reciprocals. For example 8 divided by 2 cannot be set directly so 8 times $\frac{1}{2}$ is used. Set 2 on the "C" scale over 1 on the "D" scale and multiply by 8 by reading answer, 4, on "D" scale opposite 8 on the "C" scale.

MULTIPLICATION may be set from either end (index numeral 1) of the "C" scale. Thus, to multiply numbers less than 3.15 use the left index and for numbers over 3.15 use the right index.

TO FIND THE SQUARE OF A NUMBER set number to be squared on "C" scale opposite index on the "D" scale. Read answer in the window on the "B" scale on back of slide.

TO FIND SQUARE ROOTS set the number on the "B" scale in line with the witness mark on the window. Read the square root on "C" scale opposite index of the "D" scale.

(Note that the "B" scale has two complete sets of numbers. The end of this scale to be used depends on the magnitude of the root to be found. Thus, the square root of 4, on the left hand scale is 2, while the square root of 40 on the right hand scales, is 6.33)

CIRCUMFERENCE in inches or millimeters **AND CIRCULAR AREA** in square inches or square centimeters are read directly on the back top scale and in the window marked "Read Circular Areas" as a diameter is measured in the caliper.

AREA OF A CYLINDER is found by multiplying the circumference (above) by the length of the cylinder.

VOLUME OF A CYLINDER is found by multiplying the circular area by the length of the cylinder.

LATHE SPEED AND CUTTING SPEED may be easily computed from the diameter of material by setting diameter in inches on "C" scale over 3.81 (marked as "M" on "D" scale). Read cutting speed in Feet Per Minute on "C" scale directly over machine speed in R.P.M. on "D" scale. This applies to all machine turning operations from formula:

$$\text{Dia} \frac{\text{RPM}}{3.81} \text{ using recommended cutting speed for material.}$$

3.81 FPM